

REMARKS

Claims 1-7 are pending. By this Response claims 1 and 4 are amended. Reconsideration and allowance based on the above amendments and following remarks are respectfully requested.

Claims 1-7 stand rejected under 35 U.S.C. §103(a) in view of Ashibe et al. (JP 363122385 A) in view of Saver (US 5418714 A) and Jiang (US 7242819 B2). This rejection is respectfully traversed.

In the embodiments of the invention as recited in Applicants independent claims 1 and 4, an interpolation technique is determined from amongst a plurality of different interpolation techniques for each unknown pixel. To accomplish this and obtain the most accurate interpolation technique for the unknown pixels each of the interpolation techniques is first performed on the surrounding known pixels adjacent to the unknown pixels. Thus, each of the interpolation techniques is performed on each of these neighboring known pixels as if they were unknown to obtain what is claimed as interpolation candidate data. The interpolation candidate data is then compared against the original value of the known pixel and this analysis is used to determine what method is most accurate to the actual pixel values of the surrounding normal pixels adjacent to the unknown pixel. The most accurate method is then utilized to obtain the actual value of the lost pixel. This is done for each individual lost pixel.

Applicants respectfully submit that none of the references Ashibe, Saver, or Jiang teach performing for each individual lost pixel the above scenario, in which a determination is made for each lost pixel the best interpolation technique for that particular pixel. At best, Ashibe teaches that a thinning process and reconstruction is determined for a group of pixels in a block, not for each individual lost pixel. While each lost pixel is reconstructed, the method of reconstruction/interpolation is based on a block analysis on which absolute values of all lost pixels is used in determining what method is used for all lost pixels within that block. This analysis is not performed on each individual lost pixel.

Also, there is no teaching in either Ashibe, Saver, or Jiang where interpolation on already known pixels is performed and this data then compared with actual value

of these known pixels. In the present invention as recited in Applicants claims, this is done using multiple interpolation techniques thus obtaining multiple interpolation candidate data for each known pixel. This data is then used to compare against the actual data which is used to determine which interpolation technique is most accurate for the pixel surrounding a lost pixel. Once this is accomplished, the interpolation technique determined is used for obtaining the lost pixel.

Each of Ashibe, Saver, and Jiang teach using a primary pixel (known) to obtain a value during interpolation of a secondary pixel (lost). Applicants do not disagree that this is well known. What is not taught, however, is interpolating the primary pixel at various interpolation techniques and comparing this result with the primary pixels actual value where this data is used to determine the interpolation technique from among a plurality of interpolation techniques which will most accurately obtain the secondary pixel that has been lost. This feature of Applicants claims is not addressed in the Examiner's rejection and Applicants submit is not taught by Ashibe, Saver, or Jiang alone or in combination.

Ashibe's teachings are concerned about data thinning. In Ashibe, data interpolation is performed, for each block, by a method according to a thinning method applied to the block. This means that pixel "x" in Ashibe is a "normal pixel."

Applicants claimed feature of "determining circuit for selecting one of the interpolation circuits based on a difference between the test interpolation data and actual pixel data of said plurality of normal pixels for each unknown interpolation pixel" is not disclosed in Ashibe.

In Ashibe, thinning and interpolation are carried out for every block. For one block, "difference between the test interpolation data and actual pixel data of said plurality of normal pixels" for (a) is smaller than for (b), (c) and (d). The difference for (b) is smaller than for (c) and (d). These are obvious in Ashibe.

Further, the assertions in the Office Action are not homogenous and instead contradict each other. For example, it states on page 5 of the Office Action:

based on calculations performed on test interpolation data of a plurality of normal pixels neighboring the interpolation pixel (**Drawing 3, "o" are normal pixel**

neighboring interpolation pixels "x", see Abstract "initially, interpolation to respective modes are carried out". Particularly 3(c) where "x" is interpolated using neighboring "o")

Applicants respectfully submit that drawing 3 does not teach "based on calculations performed on test interpolation data of a plurality of normal pixels neighboring the interpolation pixel" as alleged in the Office Action. In Ashibe, no interpolation is performed on pixel shown as "o" in drawing 3.

Also, the Office Action states on page 6:

a determining circuit (**Drawing 2, Unit 20**) for selecting one of the interpolation methods based on a different between the test interpolation data and actual pixel data of said plurality of normal pixels and providing a selection signal to said output circuit (**Abstract, "Then, the sum in the block of the absolute value of the difference between an interpolation signal and an original signal, namely, the quantity of the distortion to the respective modes for every block is calculated is calculates the decide the mode of all the blocks based thereon"**).

In the Office Action the same teaching in Ashibe, that is, "*(Abstract, "Then, the sum in the block of the absolute value of the difference between an interpolation signal and an original signal, namely, the quantity of the distortion to the respective modes for every block is calculated is calculates the decide the mode of all the blocks based thereon")*" is used to allegedly also teach the claimed feature of "wherein said test interpolation data is calculated for each of said normal pixels on the assumption that said normal pixel are lost using said different interpolation methods" about "an interpolation unit."

The explanation in the Office Action regarding "an interpolation unit" indicates that pixel "x" is an "unknown interpolation pixel." On the other hand, the explanation in the Office Action about "a determining circuit" indicates that pixel "x" is "normal pixel." These two explanations of teachings contradict each other. Thus, Ashibe's teachings cannot teach both the above claimed features as alleged in the Office Action.

Thus, Applicants respectfully submit that the combination of Ashibe, Saver, and Jiang fail to teach each and every feature of independent claims 1 and 4, as required. Further dependent claims 2, 3, and 5-7 likewise distinguish for at least their reliance on independent claims 1 and 4 as well as the additional features they recite. Accordingly, reconsideration and withdrawal of rejections are respectfully requested.

Interview

Applicants respectfully request that the Examiner contact Applicants representative at the phone number listed below in order to schedule a personal interview to discuss the issues pertaining to the present application in order to aid in advancement of prosecution thereof.

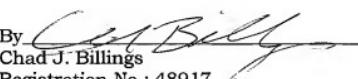
Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad J. Billings, Registration No. 48917 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: August 19, 2010

Respectfully submitted,

By 
Chad J. Billings
Registration No.: 48917
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road, Suite 100 East
P.O. Box 747
Falls Church, VA 22040-0747
703-205-8000